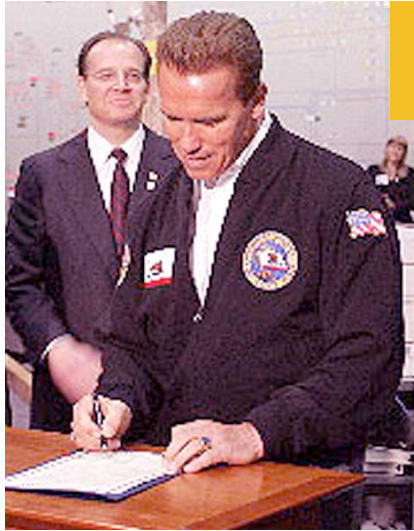


# BLUEPRINT

## SEEKING EXCELLENCE

We  
interview  
Doug  
Beaman on  
training  
and the  
state of  
the art  
- page 4

NEW YEAR'S  
RESOLUTIONS - page 3



## The Governor Proactively Supports Energy Efficiency and Renewables

*Above: At the California Independent System Operator (Cal ISO) facility in Folsom on December 14, the Governor signed his Green Buildings Executive Order.*

*Below: Following the Executive Order signing, Governor Schwarzenegger flipped a ceremonial switch to dedicate the upgrade to the Path 15 transmission line. The upgrade adds a new 500 kilovolt power line to the transmission corridor that links Northern and Southern California.*



*In December 14, 2004 Governor Schwarzenegger held a news conference which included his latest action related to energy efficiency, Executive Order S-20-04, referred to as the Green Building Initiative. Governor Schwarzenegger, speaking at the California Independent System Operator (Cal ISO) on the benefits of green energy, set the goal for state buildings to be 20 percent more energy efficient by 2015 and encouraged the private sector to do the same. The Green Buildings project will save taxpayers millions of dollars and preserve California's resources and the environment. His statement included the following:*

"... Make no mistake. California will face big energy challenges this coming summer and also maybe for years to come. So, its very important that we're proactive and we act now and we don't wait for something to happen and then act."

"What is equally critical for our long term energy plan is a strong commitment to conservation. Conservation! Conservation! Conservation! ... Conservation is something that we can do right now in order to deal with our energy crunch. Every megawatt that we save is a megawatt that we do not have to produce..."

"I want all Californians to keep flexing their power and use energy wisely, buying energy efficient homes and buying energy efficient appliances..."

"California is a national leader in conservation and we are not slowing down on my watch ... We're going to also sign an executive order creating California's Green Building Initiative today. My initiative sets a goal for state buildings to be 20% more energy efficient by the year 2015 and encourages the private sector to do exactly the same..."

"We will accomplish the common sense goals of our energy plan ... more power and lower prices. When I came to Sacramento I said that I would return the power to the people and I meant it in more ways than just one."

You can listen to the full speech at:  
<http://www.photos.gov.ca.gov/essay26.html>

The Governor's Green Building Initiative lays out a comprehensive set of actions for California to take to improve the energy efficiency of nonresidential buildings. The Energy Commission is directed to undertake all actions within its authority to increase the efficiency requirements in the Building Energy Efficiency Standards for nonresidential buildings by 20 % by 2015.



*On December 14, Governor Schwarzenegger signed an Executive Order setting aggressive energy conservation goals for state buildings and dedicated the Path 15 Upgrade, which creates an energy transmission superhighway between Northern and Southern California.*

## Western Governors Recommend Energy Efficiency to Combat Global Warming

On November 18, 2004 Governor Schwarzenegger joined with the Governors of Washington and Oregon to approve a series of recommendations for action to combat the potentially grave impacts of global climate change. Among the recommendations are directives to incorporate aggressive energy efficiency measures into updates of state building codes, with a goal of achieving at least 15 percent cumulative savings by 2015 in each state.

You can read more about the West Coast Governor's Climate Change Initiative at:  
[http://www.energy.ca.gov/global\\_climate\\_change/westcoastgov/releases/](http://www.energy.ca.gov/global_climate_change/westcoastgov/releases/)  
 and click on November 18, 2004 under News Releases.

Governor Schwarzenegger, as the Co-Lead Governor for Energy, also is advocating energy efficiency and renewables policies at the Western Governors' Association (WGA) as well. This collaborative includes 18 western states and three US-flag Pacific Islands. Prompted by the recommendations of Governor Schwarzenegger, on June 22, 2004 Policy Resolution 04-13 was passed that commits Western Governors to examine the feasibility of and actions that would be needed to "achieve a goal to develop 30,000 MW of clean energy in the West by 2015 from resources such as energy efficiency [and] solar ....and increase the efficiency of energy use by 20% by 2020."

You can read more about the Clean and Diversified Energy Initiative for the West at:  
<http://www.westgov.org/wga/policy/04/clean-energy.pdf>

## NEW YEAR's

## Resolutions



At this time of year people think about "New Year's Resolutions." The California Energy Commission is no different. One resolution the Commission has is to take action that will result in better compliance with and enforcement of the Building Energy Efficiency Standards. We will do this by investigating and resolving complaints.

Recently, in October 2004, the Commission received a complaint regarding a new 500-unit subdivision of large homes (5,000 square feet and larger) where HERS verification was required but the builder was providing his "own" person to verify his "own" work! This seemed fine with the building department, because they did not understand how HERS verification works and what role the building department was to play in the process.

Commission staff traveled to the jurisdiction, and provided training and clarification of the HERS process. As a result, the jurisdiction required the builder to comply with the law and hire an independent third party HERS rater to act as a special inspector and to field verify the performance of the HVAC systems of the homes.

The resulting energy savings will be substantial, not only to the homeowner, but to the community. It also will reduce the peak load use of all the air conditioners in these houses helping Californians, hopefully, to avoid the definite risk of not having enough power to keep the lights on in the next few summers.

This subdivision consisted of 500 houses, but how many more new homes are wasting

electricity through improperly sealed ducts as conditioned air intended to be distributed throughout the house for comfort instead pours from leaky ducts into the attic, because a builder is not complying with — or a building inspector is not enforcing — the requirement for HERS rater field verification?

What can we all do about this problem?

To begin with, we recommend a simple action on the part of building inspectors throughout the state: because such a high amount of compliance credit is earned for "sealed ducts" and because field verification and diagnostic testing is so critical to actual energy performance of the building, the Commission asks building departments to focus maximum attention on getting properly signed CF-4R forms from independent HERS raters.

The CF-4R form provided by the HERS rater certifies that they have tested and verified compliance. The form insures that the building was tested and found compliant. The building department inspector should get the CF-4R from an independent, certified HERS rater on every house that calls for field verification. If an inspector doesn't get the form, they shouldn't final the house!

As a builder, hire a HERS rater to verify "sealed ducts" or other measures that require field verifications when chosen for compliance credit. As a building inspector, ask for and receive a completed CF-4R form. Make a New Year's Resolution to be part of the solution to this problem.

*For more information, contact the Commission's Hotline at the special telephone number for building departments only, 1-800-PLAN-CHK (800-752-6245) or e-mail John Eash at [jeash@energy.state.ca.us](mailto:jeash@energy.state.ca.us).*



*The fifth in a series of articles about building department employees, builders, energy consultants, HERS raters and others who are making exemplary efforts to achieve energy efficiency in buildings.*

# SEEKING EXCELLENCE

# D

oug Beaman is the owner of Douglas Beaman Associates, a Modesto, California based energy consulting firm. Doug has over 20 years of experience providing training for building inspectors, plan checkers, building contractors, HVAC contractors, building designers, energy consultants, and homeowners.

Doug spends the majority of his time providing training. His high energy, fast-paced, and entertaining training style provides the information that participants need in an enjoyable, comfortable learning environment. He relies upon a combination of extensive field experience and technical expertise to ensure that training is both accurate and relevant.

Doug developed the training curriculum that was approved by the California Energy Commission for certification of the California Home Energy Efficiency Rating System (CHEERS) raters for new construction. Doug also teaches load calculations (ACCA Manual J), duct design (ACCA Manual D) and HVAC system diagnostic skills. Douglas Beaman Associates also coordinates CHEERS' new construction Quality Assurance program.

During the spring and fall, Doug is on the road about four days per week for training with Southern California Gas Company (SoCalGas), San Diego Gas & Electric Company (SDG&E), Pacific Gas and Electric Company (PG&E), the California Home Energy Efficiency Rating System, the California Association of Building Energy Consultants (CABEC) and CHEERS.

*Doug Beaman,*

*on training and the state of the art today.*

**Blueprint:** In your career you have done many things. What made you decide to concentrate on training?

**Beaman:** I never made a conscious decision to concentrate on training. In 1980 I was offered a part-time teaching position at San Jose State University. In the years since, I have gradually increased the amount of training I provide, until today training takes up the majority of my time. I enjoy training and I think it's truly important, particularly training on the energy standards.

# BLUEPRINT

Energy Standards are a pretty challenging topic for training. It's easy to try to just provide the information in a methodical, organized manner. But one of the things I do in training is try to make it a bit more interesting. I try to keep people involved, and make them realize that it's not so difficult. I think that one of the biggest reasons that building department folks don't enforce the Standards more is their lack of understanding of them. Their perception is that the compliance forms, the CF-1R and CF-6R, are just too confusing. One of my goals, in all my classes, is to help people get over their aversion to the Standards and give participants sufficient understanding that they can really get into the plan check and field inspection process.

Before each of my training classes, I always ask myself these questions, "What information do these participants need to understand? How can I provide that information in an understandable and enjoyable fashion? What can I do in this class to help ensure that it truly will be time well spent for each participant?"

**Blueprint:** *Why do you feel that training on the Standards is important?*

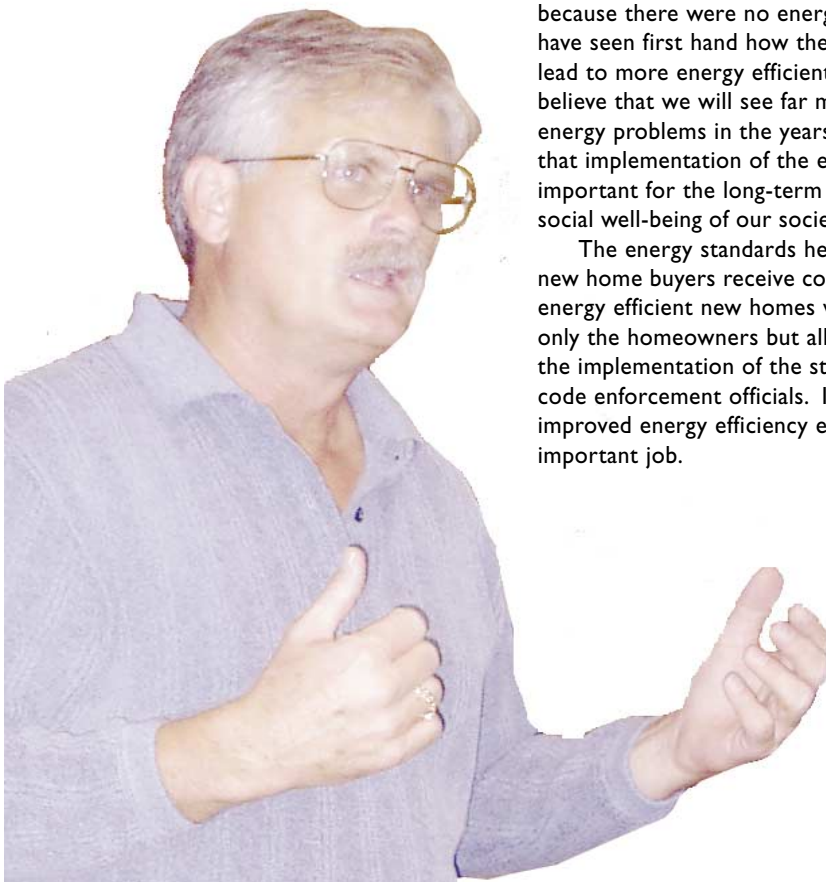
**Beaman:** I believe in the Energy Standards. When I was a teenager beating nails for our family construction business, we never installed a bit of insulation in our homes because there were no energy standards. I have seen first hand how the Energy Standards lead to more energy efficient housing. I firmly believe that we will see far more serious energy problems in the years ahead. I believe that implementation of the energy standards is important for the long-term economic and social well-being of our society.

The energy standards help ensure that new home buyers receive cost-effective, energy efficient new homes which benefit not only the homeowners but all of society. Hopefully, my training helps improve the implementation of the standards by contractors, energy consultants and code enforcement officials. If my training helps move us down the path to improved energy efficiency even a tiny bit, then I believe that I'm doing an important job.

**Blueprint:** *You are a past President of CABEC and helped develop their certification program. Could you please tell us about your involvement in that organization?*

**Beaman:** I was a founding member of the California Association of Building Energy Consultants (CABEC) back in the 1980's and I served as President for two years a few years ago.

The most important role for CABEC is to be the collective voice of the individuals that work with the energy standards every





day. CABEC members, on a daily basis, are in the middle between builders usually looking for lowest construction cost, building departments enforcing the energy standards, and designers that might be more interested in aesthetic features than energy efficiency. Because of this position, CABEC members have a unique role in the implementation of the energy standards.

I encourage CABEC members to become more involved in the development of the standards, in addition to their on-going role in implementing them. CABEC's membership has grown significantly in recent years, and we have taken on a much more professional focus. CABEC's goal is to continue to grow both in number of members and professionalism.

CABEC developed the Certified Energy Analyst (CEA) program since there was no state-wide licensing or certification for individuals performing energy compliance calculations. Anyone that hires a Certified Energy Analyst should be confident that they have hired a knowledgeable, skilled energy analyst.

There are three requirements for an energy consultant to become a CEA, after they join CABEC. First, they must pass the Certified Energy Plans Examiner test. Second, they have to have a minimum of one year's documented experience performing energy compliance calculations. And third, and very important, they have to participate in ethics training and agree to abide by a code of ethics developed by CABEC.

The CEA program has grown over the years and I believe that it will continue to grow in importance in the years ahead.

**Blueprint:** *How can CABEC members work more closely with HERS raters to get field verification?*

**Beaman:** Encouraging CABEC members to specify HERS verification measures has been a real challenge. Builders and architects often have the misconception that the HERS measures are too expensive or too



difficult, or that they will disrupt the construction schedule, or any of numerous other fallacies. In truth, HERS verification measures often times are the most cost-effective conservation feature available.

Some builders resist any and all change, but eventually they will see the value in using HERS measures. HERS measures benefit their clients, and they often are

the lowest cost energy conservation feature which will keep the construction cost down.

On the positive side, an increasing number of CABEC members have become very active HERS raters. They're doing more HERS verifications now than they are Title 24 calculations. I don't expect everybody to go that route, but I'm looking forward to the day when most CABEC members actively advocate the HERS verification features.

**Blueprint:** *When you said you promote HERS, how are you doing it?*

**Beaman:** Since 1998, I have done dozens and dozens of duct leakage classes for CABEC members, HVAC contractors, builders, and building code officials.

My primary focus in these classes is to demonstrate that duct leakage in most untested systems is significant, that duct leakage testing is easy, and that the duct leakage standards are very reasonable. My favorite training situation is to set up a small HVAC system and perform a duct leakage test. After we get the system to the 6% leakage standard, I generate "smoke" that is drawn into the system and out through the leaks so that the participants can see the amount of leakage.

In almost every class, the reaction is the same, "You mean this much leakage still passes?" When participants see how much "smoke" escapes from a system with 6% duct leakage, they realize that the HERS standards are very reasonable.

**Blueprint:** *What can you tell us about building departments?*

**Beaman:** Most of the building code enforcement officials I see in my classes really are interested in enforcing the standards, and doing the best job they can. The vast majority of building code enforcement officials truly want to give more attention to the energy standards but they don't have enough time to do it.

I hear comments like, "We'd like to do this right if we can do it without taking too much time." I understand that completely and it's a very reasonable approach. That's why in my training I focus on the most important aspects of the standards and identify the key plan check and field inspection items.

Building departments that are not completely enforcing the HERS verification offer a big

challenge. I think this happens because they think that HERS measures are a voluntary requirement, or they don't know how to look at a CF-IR and see if they're specified. That will lessen as people become more familiar and more comfortable with HERS verification.

**Blueprint:** *You have been a CHEERS trainer for Northern and Southern California. You helped develop the certification curriculum. Could you please tell us about your view on the future of the organization?*

**Beaman:** I see a tremendous future for HERS and I see a tremendous future for CHEERS. *[Editor's note: There are two Energy Commission approved HERS providers in the state, CHEERS and C-HERS, both of which provide similar services.]*

My office is also responsible for the quality assurance for CHEERS. That is extremely important. In addition to the regular quality assurance

verifications we perform with all CHEERS Raters, we provide conflict resolution as an integral part of our work.

Under the 2005 Energy Standards, HERS verification will play a greater role than today. HERS verifications will be required when either residential or nonresidential HVAC systems are replaced. This marginally will increase the cost of the replacement, but the energy savings are so great that the market will come to embrace this approach. So I see tremendous growth for HERS in the future.

**Blueprint:** *Could you tell us about your involvement in the PG&E program on code enhancement?*

**Beaman:** Douglas Beaman Associates has a contract with Pacific Gas and Electric to do a study on energy code enhancement. The premise of the study is, "We have really strong energy standards, but what sort of things could be done to improve or enhance energy code enforcement?"

We conducted a literature search, we sent a written survey to all building departments in the state, and we conducted face-to-face interviews with staff from about a dozen building departments. We were trying to ascertain the level of understanding of the energy standards, as well as to develop recommendations from building departments on ways to enhance code enforcement. In the months ahead I think that you will see these recommendations

incorporated into utility and state code enhancement efforts.

**Blueprint:** *Could you tell us about the planned examination for Certified Energy Plans Examiner?*

**Beaman:** I have personally been involved with the Certified Energy Plans Examiner (CEPE) process since 1997, when it was funded by the Energy Commission. My firm won the contract for providing the training, writing and administering the test. That was the last year the Commission funded it, so it is now administered by CABEC. CABEC receives funding from the utilities for training, and test fees support the administration of the test.

The CEPE has continued to grow over the years; right now we have 345 individuals who are certified for either residential, nonresidential or both. That's the highest number of people that have ever been Certified Energy Plans Examiners. At the residential training in Stockton this year we actually had to turn people away, the classroom wasn't big enough for everyone.

Our efforts in the years ahead will be to increase the stature of the CEPE program and the individuals that are certified energy plans examiners. Our efforts will be to increase awareness and understanding in building departments about the CEPE. We encourage building departments to use the CEPE as a criteria when they hire new people, or when they hire third party plan checking firms. Energy consultants also use the CEPE as a badge of honor when they're marketing their services to builders, architects, or homeowners.

**Blueprint:** *Back to training. What do you think about the training that is available now?*

**Beaman:** I think the training is very good. There are two levels of training. First, there is general introductory overview training. That training is absolutely essential to get people aware of the standards, and it needs to be provided all the time, not just when the standards change, because there are always new hires and new people in the field.

There's another level of training that's needed too, and that's the more in-depth training. "How do I actually read this computer run?" "I've got these

forms, and I need to understand them better." Or from a field inspector, "I need more specific knowledge on how to get into an ARI Directory or manufacturer's cutsheets to learn about the efficiency of a piece of equipment." We need more in-depth training. The challenge is that the demand for in-depth training is much smaller, so it's harder to schedule and sponsor in-depth training. The number of people that attend the training is much smaller.

I think the general type of training that's being provided right now is really good. I think one of the things we need though, is a bit more in-depth training. Another challenge is for building department staff to find the time to attend training. Building department staffs are spread really thin, and it's hard for supervisors to give staff time to attend classes.

**Blueprint:** *What do you see in the future for training and the standards?*

**Beaman:** It's probably some combination of online training, training similar to the CEC webcast two years ago, and a small amount of in-person training. There will be far fewer classes with an instructor standing in front of a group of ten or twenty people. More likely the participants will be sitting in front of a computer screen, or watching a big screen webcast.

I think this will enhance training overall, but I'm glad that I will be watching from my rocking chair. For me the best part of training is the interaction with the participants: even when some guy in the back of the room starts "barking" at me about something I've said or something in the standards. Clearly that is the most challenging part of training; but it also is the most rewarding if I am able to handle it well.

My greatest strength as a trainer is my ability to engage the participants. I appreciate the give and take when I'm working with a group of folks that truly want to learn more about the energy standards. At the end of a day of training I want my participants to feel that the day has been time well spent for them. If that's true, then it's been time well spent for me.

*The California Energy Commission does not endorse any products, supplier, manufacturer or builder. The text in this interview is meant to be informational and not all inclusive.*



# Energy Commission Approves NEW ENERGY-SAVING RULES FOR APPLIANCES

S

acramento – At its December 15, 2004 business meeting, the California Energy Commission approved new regulations to make appliances sold in the state the most energy efficient in the nation.

“The result of today’s 5-0 vote will be to slow electricity demand in the state and save approximately 100 megawatts of generating capacity every year,” said Energy Commissioner Jackalyne Pfannenstiel, presiding member of the Commission’s Efficiency Committee. “The energy savings are cumulative, so that in 10 years, because of today’s new appliance regulations, we can avoid building three large power plants that would have to generate as much as 1,000 megawatts.”

The new energy standards regulate appliances such as incandescent lamps; audio and video equipment; residential pool pumps and portable electric spas; evaporative coolers; ceiling fans, exhaust fans and whole house fans; commercial ice makers, refrigerators and freezers; vending machines; commercial hot food holding cabinets and water dispensers, among others. The regulations go into effect on a staggered schedule beginning in January, 2006.

The new regulations also cover external power supplies, the small transformers that are used to power answering machines, cell and cordless phones, and a host of other small consumer products and small appliances. These devices draw electricity whenever they are plugged into an electrical socket, even if the product they are powering is not in use.

“Power supplies can waste surprisingly large amounts of electricity around the house,” said Energy Commissioner Arthur Rosenfeld. “Informally known as ‘energy vampires,’ their efficiency varies

greatly. Some models draw only one-fifth of a watt to do the same job other models use three watts to do. These new regulations will prevent that sort of needless waste.”

The Energy Commission estimates that the average California household has between 10 and 20 external power supplies that cost the homeowner as much as \$75 in wasted electricity each year.

Several consumer and environmental organizations spoke in support of the new regulations. Noah Horowitz, Senior Scientist for the Natural Resources Defense Council, noted that “these standards will cut consumer and business electricity bills and reduce the amount of pollution emitted from our power plants. Once fully implemented, along with other measures to be adopted in the spring, the standards will reduce power plant emissions of the global warming pollutant carbon dioxide by two million metric tons per year. This is the equivalent of removing 320,000 cars from California roads each year.”

Citing utility industry support for the appliance regulations, Roland Risser, Director of Customer Energy Efficiency for Pacific Gas & Electric, said, “These standards will continue to help improve the environment and grid stability, as they reduce customer costs in the future. PG&E believes strongly in these standards and is committed to assisting in increasing them.”

States are allowed to regulate the efficiency level of appliances not covered by national standards. The federal government has already adopted energy efficiency standards for residential refrigerators, clothes washers, dishwashers and other appliances once covered by state regulation. None of the appliances in today’s ruling are federally regulated.



N F C I

Nonresidential  
Fenestration  
Certification  
Initiative

*This FREE training is provided through a grant from the California Public Utilities Commission to the Nonresidential Fenestration Certification Initiative (NFCI), California State University, Chico.*

**FREE Title 24 Training in**

**NONRESIDENTIAL**

# **WINDOWS/ FENESTRATION**

*Who should attend?*

- ◆ Building Officials
- ◆ C-17 (Window) Contractors
- ◆ Design Professionals
- ◆ Other interested entities

▼ ***Trainer comes to your site, OR***

▼ ***Attend a scheduled session***

***(See page 14 of this Blueprint for details)***

Two-hour class covers the 2005 energy efficiency and labeling regulations for site-built fenestration in nonresidential buildings.

**TO SET UP TRAINING, REGISTER FOR TRAINING,  
OR GET FURTHER INFORMATION, CONTACT:**

Janet Gouvea

**Nonresidential Fenestration Certification Initiative**

California State University, Chico

530-898-6297

[jgouvea@csuchico.edu](mailto:jgouvea@csuchico.edu)

# Special Information for Building Officials

*"Protect the Consumer  
– Don't final the house  
until you have a  
completed copy of the  
**CF-4R!**"*



And don't forget - the HERS rater must be independent - not associated with the Project Builder's Company or the HVAC Company!

T

he **CF-4R** is the form completed by a HERS rater—third party special inspector. It is required whenever the builder chooses to use third party field verification to achieve compliance with the energy code.

The **CF-4R** is very important because compliance credit is given on paper for having systems third party—verified and the **CF-4R** proves that the verification was done.

For a training video on "**Enforcement of HERS Ratings**" go to:  
[www.consumerenergycenter.org/videos/residential/CHEERS\\_HERS/code](http://www.consumerenergycenter.org/videos/residential/CHEERS_HERS/code)



## Did you know?

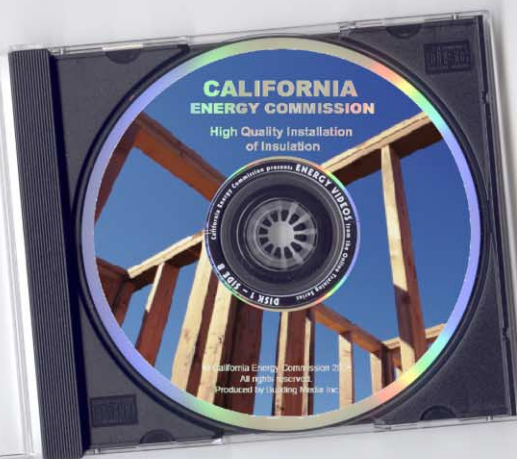


**T**he California Energy Commission, the North American Insulation Manufacturers Association (NAIMA) and Building Media, Inc. (BMI) have teamed up to produce an entertaining, multi-media training CD to help California construction professionals build more energy efficient homes.

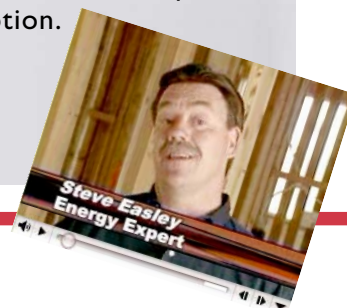
The video-based, multi-media training program features building science expert Steve Easley showcasing quality installation procedures by interviewing insulation installation contractors on the job site. Steve takes you "into the field" to show builders, HERS raters and building department staff exactly what has to be done to obtain credit for the 2005 Standard's "High Quality Installation of Insulation" compliance option.

To view the videos go to:  
<http://www.energyvideos.com>  
 and click on New! –  
 "2005 Standards Videos"

To obtain a CD of the  
 videos, contact the  
 Energy Hotline@  
 800-772-3300  
 916-654-5106



# Online Energy Training Videos



Over 100 videos on a variety of energy topics are available both at:

[www.energyvideos.com](http://www.energyvideos.com) or  
[www.ConsumerEnergyCenter.org/videos/](http://www.ConsumerEnergyCenter.org/videos/)



# BLUEPRINT

Arnold Schwarzenegger  
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CALIFORNIA  
ENERGY  
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William J. Keese  
Chairman

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Ram Verma, Nelson Peña,  
Maziar Shirakh, Gary Flamm,  
Rob Schlichting and Tav Commins  
for their help in creating  
this edition of the Blueprint.

Publication number  
CEC-400-2005-004

TECHNICAL  
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Website  
<http://www.energy.ca.gov/>

## TITLE 24 ENERGY EFFICIENCY STANDARDS TRAINING

Links for training on issues relating to California Energy Efficiency Standards for Residential and Nonresidential Buildings (Title 24, Part 6) are available on the Energy Commission's web site at:  
[www.energy.ca.gov/title24/training](http://www.energy.ca.gov/title24/training)

Please see the following websites for training offered by the utility companies and other organizations:

### PG&E:

[www.pge.com/stockton](http://www.pge.com/stockton)

### SoCal Gas & SDG&E:

[www.socalgas.com/business/resource\\_center/erc\\_seminar\\_info.shtml](http://www.socalgas.com/business/resource_center/erc_seminar_info.shtml)

### SCE:

[www.sce.com/sc3/002\\_save\\_energy/002f\\_ctac/002f3\\_work\\_classes/default.htm](http://www.sce.com/sc3/002_save_energy/002f_ctac/002f3_work_classes/default.htm)

### SMUD:

[www.smud.org/education/index.html](http://www.smud.org/education/index.html)

### CALBO Training Institute:

[www.calbo.org](http://www.calbo.org)

### CABEC:

2004 CEPE Training & Testing schedule is now posted on the CABEC website at this link:  
[www.cabec.org/cepetrainandtest.php](http://www.cabec.org/cepetrainandtest.php)

**The NFCI (National Fenestration Certification Initiative at California State University/Chico) offers FREE Title 24 Nonresidential training on fenestration at the following locations and dates:**

### PG&E Energy Training Center in Stockton

To Register for classes:

e-mail or call Janet Gouvea at

[jgouvea@csuchico.edu](mailto:jgouvea@csuchico.edu) Phone: 1-530-898-6297

February 17, 2005  
8:30-10:00 & 11:00-12:30

May 2, 2005  
8:30-10:00 & 11:00-12:30

March 17, 2005  
8:30-10:00 & 11:00-12:30

June 20, 2005  
8:30-10:00 & 11:00-12:30

### SoCal Energy Resource Center

To Register for classes:

Internet: <http://www.socalgas.com/erc> or [ERC@socalgas.com](mailto:ERC@socalgas.com) Fax: 1-562-803-7551

Phone: 1-800-427-6584 - press option one.

January 20, 2005  
10:00 to 12:00 and 1:00 to 3:00

May 12, 2005  
8:00 to 9:30 and 10:30 to 12:00

February 3, 2005  
10:00 to 12:00 and 1:00 to 3:00

June 24, 2005  
8:00 to 9:30 and 10:30 to 12:00

### San Francisco Pacific Energy Center

To Register for classes:

e-mail or call Janet Gouvea at

[jgouvea@csuchico.edu](mailto:jgouvea@csuchico.edu) Phone: 1-530-898-6297

February 18, 2005  
9:00-11:00

May 6, 2005  
9:00-10:30 & 11:00-12:30

March 18, 2005  
9:00-10:30 & 11:00-12:30

June 17, 2005  
9:00-10:30 & 11:00-12:30

The Blueprint is  
published electronically  
and distributed by e-mail  
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